IN THE CLAIMS

1. (Original) An apparatus for transmitting a signal having a first bandwidth through a telephone line having a second bandwidth, wherein the first bandwidth includes frequencies outside the second bandwidth, the apparatus comprising:

a generator circuit that generates a carrier signal having a frequency within the second bandwidth;

a modulator, coupled to the generator circuit, that modulates that carrier signal with the signal having the first bandwidth to provide a modulated carrier signal; and

an interface circuit that injects the modulated carrier signal into the telephone line.

2. (Original) The apparatus of claim 1, wherein the generator circuit generates a pilot tone having a frequency lower than the frequency of the carrier signal and further comprising:

a filter, coupled to the modulator, that filters the modulated carrier signal to remove lower sideband signals to provide a filtered modulated carrier signal; and

a summing circuit, coupled to the modulator and to the generator circuit, that combines the filtered modulated carrier signal with the pilot tone signal to provide an output signal;

wherein the interface circuit injects the output signal into the telephone line.

3. (Original) The apparatus of claim 2, wherein the frequency of the pilot tone is approximately one half the frequency of the carrier signal.

4. (Original) The apparatus of claim 1, wherein the generator circuit generates a pilot tone having a frequency greater than the frequency of the carrier signal and further comprising:

a filter, coupled to the modulator, that filters the modulated carrier signal to remove upper sideband signals to provide a filtered modulated carrier signal; and

a summing circuit, coupled to the modulator and to the generator circuit, that combines the filtered modulated carrier signal with the pilot tone signal to provide an output signal;

wherein the interface circuit injects the output signal into the telephone line.

5. (Original) An apparatus for demodulating a signal having a first bandwidth that has been transmitted through a telephone line having a second bandwidth, wherein the first bandwidth includes frequencies outside the second bandwidth, the apparatus comprising:

a demodulator that demodulates a received modulated carrier signal using a carrier signal to provide the signal having the first bandwidth.

6. (Original) The apparatus of claim 5, further comprising:

a first circuit that processes the received modulated carrier signal to provide a pilot tone signal having a first frequency;

a second circuit that processes the first frequency to provide a carrier signal; and

a third circuit that filters the received modulated carrier signal to remove a pilot tone frequency to provide a received filtered modulated carrier signal;

wherein the demodulator is coupled to the second and third circuits and demodulates the received filtered modulated carrier signal to provide the signal having the first bandwidth.

7. (Original) The apparatus of claim 5, wherein the second circuit multiplies the first frequency to provide the carrier signal.

8. (Original) The apparatus of claim 7, wherein the second circuit doubles the first frequency.

9. (Original) The apparatus of claim 5, wherein the second circuit divides the first frequency to provide the carrier signal.

10. (Original) The apparatus of claim 1, wherein the first bandwidth is in the range of approximately 20 Hz to approximately 1600 Hz.

11. (Original) The apparatus of claim 10, wherein the second bandwidth is in the range of approximately 300 Hz to approximately 3400 Hz.

12. (Original) The apparatus of claim 11, wherein the frequency of the carrier signal is less than a frequency of the modulated carrier signal.

13. (Original) The apparatus of claim 12, wherein the frequency of the carrier signal is approximately 1800 Hz.

14. (Original) The apparatus of claim 11, wherein the pilot tone signal has a frequency of approximately 900 Hz.

15. (Original) The apparatus of claim 1, further comprising selection means for selecting the output signal or a voice signal to be injected into the telephone line.

16. (Original) The apparatus of claim 15, wherein the selection means further comprises means for selecting the output signal to be injected into the telephone line or a voice signal from the telephone line.

17. (Original) The apparatus of claim 5, further comprising selection means for selecting the signal having the first bandwidth or a voice signal from the telephone line.

18. (Original) The apparatus of claim 1, further comprising means for recording signals injected into the telephone line.

19. (Original) The apparatus of claim 5, further comprising means for recording signals received from the telephone line.

20. (Original) The apparatus of claim 1, further comprising an electronic stethoscope that provides the signal having the first bandwidth.

21. (Original) The apparatus of claim 20, further comprising an infrared communication link that couples the signal having the first bandwidth to the apparatus.

22. (Original) The apparatus of claim 20, further comprising a radio frequency communication link that couples the signal having the first bandwidth to the apparatus.

23. (Original) The apparatus of claim 5, further comprising an electronic stethoscope that receives the signal having the first bandwidth.

24. (Original) The apparatus of claim 23, further comprising an infrared communication link that couples the signal having the first bandwidth provided by the demodulator to the electronic stethoscope.

25. (Original) The apparatus of claim 23, further comprising a radio frequency communication link that couples the signal having the first bandwidth provided by the demodulator to the electronic stethoscope.

26. (Original) A method for transmitting a signal having a first bandwidth through a telephone line having a second bandwidth, wherein the first bandwidth includes frequencies outside the second bandwidth, the method comprising the steps of:

selecting a carrier signal having a frequency within the second bandwidth;

modulating the carrier signal with the signal having the first bandwidth to provide a modulated carrier signal; and

injecting the modulated carrier signal into the telephone line.

27. (Original) The method of claim 26, further comprising the steps of:

selecting a pilot tone signal having a frequency lower than the frequency of the carrier signal;

filtering the modulated carrier signal to remove lower sideband signals to provide a filtered modulated carrier signal;

combining the filtered modulated carrier signal with the pilot tone signal to provide an output signal; and

injecting, in the injecting step, the output signal into the telephone line.

28. (Original) The method of claim 27, wherein the frequency of the pilot tone signal is approximately one half the frequency of the carrier signal.

29. (Original) The method of claim 26, further comprising the steps of:

selecting a pilot tone signal having a frequency greater than the frequency of the carrier signal;

filtering the modulated carrier signal to remove upper sideband signals to provide a filtered modulated carrier signal;

combining the filtered modulated carrier signal with the pilot tone signal to provide an output signal; and

injecting, in the injecting step, the output signal into the telephone line.

30. (Original) A method for demodulating a signal having a first bandwidth that has been transmitted through a telephone line having a second bandwidth, wherein the first bandwidth includes frequencies outside the second bandwidth, the method comprising the step of:

demodulating a received modulated carrier signal using a carrier signal to provide the signal having the first bandwidth.

31. (Original) The method of claim 30, further comprising the steps of:

processing the received modulated carrier signal to provide a pilot tone signal having a first frequency;

processing the first frequency to provide a carrier signal;

filtering the received modulated carrier signal to remove a pilot tone frequency to provide a received filtered modulated carrier signal; and

demodulating, in the demodulating step, the received filtered modulated carrier signal to provide the signal having the first bandwidth.

32. (Original) The method of claim 31, wherein the step of processing the first frequency to provide a carrier signal includes the step of multiplying the first frequency.

33. (Original) The method of claim 32, wherein the step of multiplying includes doubling the first frequency.

34. (Original) The method of claim 31, wherein the step of processing the first frequency to provide a carrier signal includes the step of dividing the first frequency.

35. (Original) The method of claim 26, wherein the first bandwidth is in the range of approximately 20 Hz to approximately 1600 Hz.

36. (Original) The method of claim 35, wherein the second bandwidth is in the range of approximately 300 Hz to approximately 3400 Hz.

37. (Original) The method of claim 36, wherein the frequency of the carrier signal is less than a frequency of the modulated carrier signal.

38. (Original) The method of claim 37, wherein the frequency of the carrier signal is approximately 1800 Hz.

39. (Original) The method of claim 38, wherein the pilot tone signal has a frequency of approximately 900 Hz.

40. (Original) The method of claim 26, further comprising the step of selecting the output signal or a voice signal to be injected into the telephone line.

41. (Original) The method of claim 40, further comprising the step of selecting the output signal to be injected to be injected into the telephone line or a voice signal from the telephone line.

42. (Original) The method of claim 30, further comprising the step of selecting the signal having the first bandwidth or a voice signal from the telephone line.

43. (Original) The method of claim 26, further comprising the step of recording signals injected into the telephone line.

44. (Original) The method of claim 30, further comprising the step of recording signals received from the telephone line.

45-78. (Cancelled)

Please add the following new claims.

79. (New) The apparatus of claims 21, 22, 24, 25, wherein at least one of the first and second communication links includes a transceiver.

80. (New) The apparatus of claim 79, wherein the transceiver is incorporated into at least one of the first and second electronic stethoscopes.

81. (New) The apparatus of claim 1, wherein the frequency of the pilot tone is within the second bandwidth.

82. (New) The method of claim 27, wherein the frequency of the pilot tone is within the second bandwidth.

83. (New) The apparatus of claim 1, further comprising an analog-to-digital converter constructed and arranged to digitize the signal having the first bandwidth.

84. (New) The apparatus of claim 12, wherein the frequency of the carrier signal is not within the first bandwidth.

85. (New) A communication and remote diagnosis system, comprising:

a first electronic stethoscope that provides a data signal having a first bandwidth;

a first base unit that transmits the data signal through a telephone line having a second bandwidth;

a communication link that couples the data signal provided by the electronic stethoscope to the first base unit;

wherein the first base unit includes a generator circuit that generates a carrier signal having a frequency within the second bandwidth and a modulator, coupled to the generator circuit, that modulates the carrier signal with the signal having the first bandwidth to provide a modulated carrier signal;

a first interface circuit, coupled to the first base unit, that injects the modulated carrier signal into the telephone line;

a second interface circuit, coupled to the telephone line, that receives the modulated carrier signals and provides a received modulated carrier signal; and

a second base unit, coupled to the second interface circuit, including a demodulator that demodulates the received modulated carrier signal to provide the signal having the first bandwidth.

86. (New) The communication and remote diagnosis system of claim 85, wherein the generator circuit generates a pilot tone having a frequency lower than the frequency of the carrier signal and the first base unit further comprises:

a filter, coupled to the modulator, that filters the modulated carrier signal to remove lower sideband signals to provide a filtered modulated carrier signal; and

a summing circuit, coupled to the modulator and to the generator circuit, that combines the filtered modulated carrier signal with the pilot tone signal to provide an output signal;

wherein the first interface circuit injects the output signal into the telephone line.

87. (New) The communication and remote diagnosis system of claim 86, wherein the frequency of the pilot tone is approximately one half the frequency of the carrier signal.

88. (New) The communication and remote diagnosis system of claim 85, wherein the generator circuit generates a pilot tone having a frequency greater than the frequency of the carrier signal and the first base unit further comprises:

a filter, coupled to the modulator, that filters the modulated carrier signal to remove upper sideband signals to provide a filtered modulated carrier signal; and

a summing circuit, coupled to the modulator and to the generator circuit, that combines the filtered modulated carrier signal with the pilot tone signal to provide an output signal;

wherein the first interface circuit injects the output signal into the telephone line.

89. (New) The communication and remote diagnosis system of claim 85, wherein the second base unit further comprises:

a first circuit that processes the received modulated carrier signal to provide a pilot tone signal having a first frequency;

a second circuit that processes the first frequency to provide a carrier signal; and

a third circuit that filters the received modulated carrier signal to remove a pilot tone frequency to provide a received filtered modulated carrier signal;

wherein the demodulator is coupled to the second and third circuits and demodulates the received filtered modulated carrier signal to provide the signal having the first bandwidth.

90. (New) The communication and remote diagnosis system of claim 89, wherein the second circuit multiplies the first frequency to provide the carrier signal.

91. (New) The communication and remote diagnosis system of claim 90, wherein the second circuit doubles the first frequency.

92. (New) The communication and remote diagnosis system of claim 89, wherein the second circuit divides the first frequency to provide the carrier signal.

93. (New) The communication and remote diagnosis system of claim 85, further comprising means for selecting one of the data signal or a voice signal to be transmitted through the telephone line.

94. (New) The communication and remote diagnosis system of claim 85, further comprising a second electronic stethoscope that receives the signal having the first bandwidth and a second communication link that couples the signal having the first bandwidth from the second base unit to the second electronic stethoscope.

95. (New) The communication and remote diagnosis system of claim 85, wherein at least one of the first and second communication links is an infrared communications link.

96. (New) The communication and remote diagnosis system of claim 85, wherein at least one of the first and second communication links is a radio frequency communications link.

97. (New) The communication and remote diagnosis system of claim 85, wherein the first bandwidth is in the range of approximately 20 Hz to approximately 1600 Hz.

98. (New) The communication and remote diagnosis system of claim 97, wherein the second bandwidth is in the range of approximately 300 Hz to approximately 3400 Hz.

99. (New) The communication and remote diagnosis system of claim 85, wherein at least one of the first and second communication links includes a transceiver.

100. (New) The apparatus of claim 99, wherein the transceiver is incorporated into at least one of the first and second electronic stethoscopes.

101. (New) The communication and remote diagnosis system of claim 85, wherein the frequency of the pilot tone is within the second bandwidth.

102. (New) A system for transmitting a signal having a first bandwidth through a telephone line having a second bandwidth, wherein the first bandwidth includes frequencies outside the second bandwidth, the system comprising:

a first electronic stethoscope that provides a signal having the first bandwidth;

an analog-to-digital converter, coupled to the first electronic stethoscope, that converts the signal to a first digital signal;

a compressor, coupled to the analog-to-igital converter, that compresses the first digital signal by a ratio so as to allow transmission of the first digital signal through the telephone line to provide a second digital signal; and

a first modem, coupled to the compressor, that injects the second digital signal into the telephone line.

103. (New) The apparatus of claim 102, wherein the compressor compresses the digital signal by a ratio of at least 6 to 1.

104. (New) The apparatus of claim 103, wherein the compressor uses an ADPCM compression algorithm.

105. (New) The apparatus of claim 104, wherein the compressor compresses the first digital signal by a ratio of 6.5 to 1.

106. (New) The system of claim 102, further comprising:

a second modem, coupled to the telephone line, that receives the second digital signal from the telephone line;

a decompressor, coupled to the second modem, that decompresses the second digital signal by a ratio that restores the first digital signal;

a digital-to-analog converter, coupled to the decompressor, that converts the first digital signal to an analog signal having the first bandwidth; and

a second electronic stethoscope that receives the analog signal having the first bandwidth.

107. (New) The apparatus of claim 106, wherein the decompressor decompresses the second digital signal by a ratio of at least 1 to 6.

108. (New) The apparatus of claim 107, wherein the decompressor uses an ADPCM decompression algorithm.

109. (New) The apparatus of claim 108, wherein the decompressor decompresses the second digital signal by a ratio of 1 to 6.5.

110. (New) A stethoscope to stethoscope communication system, the system comprising:

a first electronic stethoscope that provides an electronic signal representative of biological activity;

a transmitter, coupled to the first electronic stethoscope, that transmits the electronic signal;

at least one receiver that receives the transmitted electronic signal; and at least one additional electronic stethoscope coupled to the at least one receiver.

111. (New) The stethoscope to stethoscope communication system of claim 110, wherein the transmitter and the at least one receiver use an infrared communication link.

112. (New) The stethoscope to stethoscope communication system of claim 110, wherein the transmitter and the at least one receiver use a radio frequency communication link.

113. (New) The communication and remote diagnosis system of claim 85, further comprising an analog-to-digital converter constructed and arranged to digitize the signal having the first bandwidth.

114. (New) The apparatus of claim 106, further comprising means for transmitting a voice signal through the telephone line.

115. (New) The apparatus of claim 114, wherein the means for transmitting includes a compressor and a decompressor.

116. (New) The apparatus of claim 115, wherein the compressor and decompressor use ADPCM algorithms.